## Handout 4 - The Binomial Theorem and Pascal's Triangle

1. Expand 
$$(a+b)^4$$
.

$$a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4$$

6. Find the 5th term of 
$$(x-y)^8$$
.

$$70x^4y^4$$

2. Expand 
$$(m+4n)^5$$
.

$$m^5 + 20m^4n + 160m^3n^2 + 640m^2n^3 + 1280mn^4 + 1024n^5$$

7. Find the 3rd term of 
$$(x-y)^{15}$$
.

$$105x^{13}y^2$$

3. Expand 
$$(5c - b^2)^4$$
.

$$625c^4 - 500c^3b^2 + 150c^2b^4 - 20cb^6 + b^8$$

8. Find the 4th term of 
$$(x-y)^7$$
.

$$-35x^4y^3$$

4. Expand 
$$(1 - y^2)^6$$
.

$$1 - 6y^2 + 15y^4 - 20y^6 + 15y^8 - 6y^{10} + y^{12} \\$$

9. Find the 2nd term of 
$$(x-y)^9$$
.

$$-9x^8y$$

5. Find the 6th term of 
$$(x-y)^8$$
.

$$-56x^3y^5$$

10. Find the 10th term of 
$$(x-y)^{10}$$
.

$$-10xy^9$$

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